DREDGE
5
San Naccos
Seamount

San Marcos

4080 - 3045 M

SAMPLE ID	*Mn CHEM	*Mn CHEM Pt & Au*	REE *	Si Chem*	P.Sect.	35mm Pho	Archive	Palen	XRD		
1-50	Lanees	Lanels	Lauers	Bosalt	75						
08-2			,								
05-3	Buck				5.				X		
D8-47/							·				
2-90											
ر دار دار	S.u.i.										
D5-7											
05-8											
D5-4											
05-10				38							
05-81											
D5-12											
D5-13											
D5-14											
05-15											
05-16	Salkgard		-								
D5-17	Buth								40 11001 Layer		
05-18											
DS-19											
			G:								
* All chemistry	try samples	es have X	have XRD mineralogy done	logy done	also.						

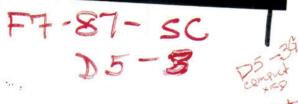
Cruise Id:	F7-87-SC	Size:	Location:	Sem marce	2 Samuert
Sample Id:	05~1	Weight: 10 h	Depth:	1080- 304	
Mn Crust D Surface Textu	Description per	d oversided	_		
Mn Crust Thi Min: 13 Layers (Outer Min	Max:	2	-		
1	1	Texture Brown Las	11111	1	
2. <u>2</u>		Black Many is		The state of the s	
3				10.00	
4					Hot Carlot
5					4
0.					
414	d XRD Mineralogy:	A Comment	ANALYSES	05-1	
	V		Subsample & Type D5-1A, Bulk	CC, REE, P	Weight ~25mm Thick
				AUIVRD	
			outer laver	ALLIYRD	15 mm Thick , p.
Substrate De Rock Type: 18	escription 1055/40 Oliving 1 rinh Lelow	Court	Inner lain	OCIREE, PT.	6 mm Thick, mass, black,
Description:					Transection of brown
				-	Ilch Jayer Sedwers
					+ busaltee bloom -
					Most left out of 14
			D5-1D		busilt alice
escribed By:	di	43) 5 - IA		N 0 V 2
J.	Sul	bsampled By:			UP

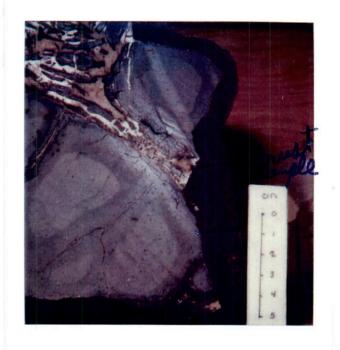
laminded brown is to _ B) ack massie, bullo

Cruise Id: F7-87-SC	Size:	Location:	n nonego	Scamment
Sample Id: 05-2	Weight:	Depth:	80-3045	
Mn Crust Description Surface Texture:	Nounge Dies	Ex.		
Litedral granular				
Mn Crust Thickness: Min: Max:(8)	Ave: 4			
Layers (Outer to Inner): Min Max Ave	e Texture			
1				The second
2				
3.				
4.			o in on m	10. 70 co 10 m 40 100
6				A STATE OF THE STA
Comments and XRD Mineralo		ANALY	D5-	2
DI	ack massive on 60	Subsample & Type	Analysis	Weight
3.425	though have	DS-ZA bulk	CC, XRD	10 mm Thich
-	1			
Substrate Description				
Rock Type:	Erist Basili			
Description:				
Birst !	bell uphaniti	1		
- Alound mission				
Black glassa	miscial.	T		
thick there	on dans	•		-
	<u> </u>		-	
			-	
Described Ry.	Subcampled Dy.			

Cruise Id: F7-87-SC	_ Size: _227/98/9	Location: S	an Marco.	2 Sooment
Sample Id: D5-3	Weight: 10 he	Depth: 40	80-304	N. S. W.
Mn Crust Description Surface Texture:	e Side wit			5
abundant Coarse- gra	melar		5 1/2 N	
Mn Crust Thickness: Min: 7 Max: 20	Ave:			
Layers (Outer to Inner): Min Max Ave	Texture		5	
1.			-4	in I
3.				700%
4.				s
5.				
6		3		
Comments and XRD Mineralogy:				
fragment in Crest; by granules.	Sub lash Di	Sample & Type	Analysis	Weight
V			VES	
		-3C	XKD	Breccia Walrig +
S. L. J. D.		3 D		polocionte
Rock Type: Altered Bosol		3-3E side	ges rulessa	of glass (A.D.)
Description:		35mm shaf		GSmith
along fractures to be to	Con Prima	15.3F De	TS of Be	ecia seo pack - 14%
bugality to palagon to	oscinitis of	Characa	rom ChoF	The application of the second
conformate I servent sug	aported)	(BINOC-90)	XEDSY, C	P2
anc desa (con	· 22 # 1.5	12.1/4.2.0 1.0 1		
192	-			011











ormse id:	F7-87-SC	Size: 14 × 15	Location:	San Mar	(2.27)	
Sample Id:_	75-4	Weight: 2 k	9 Depth: 43	050-30	15	
Mn Crust	Description	abrailded?	Deptil.			
Mn Crust T	hickness: Max:_/5	Ave:_ 7 - 10	uninatari			
ayers (Outo Min	er to Inner): Max Ave	Texture				
				Section 1	60 60 70 80 90 3	00 110 120
				医生活	・ビャバルフにおり取り込みをおりまります。 ・ビャバルフにおり取り込みをおります。	(OE
omments ar	nd XRD Mineralogy	:	ANALYSES	D5-	4	
			Subsample & Type	Analysis	Weight	
bstrate D	escription	photes i a				
scription:		2020 4				
					The second design of the secon	

Cruise Id: F7-87-SC	Size: <u>135x8x</u> 8	Location:	San March	ıs	
Sample Id: D5-5	Weight: 115 Pa	Depth:	4080 -304	15	
Mn Crust Description Surface Texture: Smooth +	o granular		-		
Mn Crust Thickness: Min: Max: 10 mm	^ Ave: <u>5.5 m</u>		-		71
Layers (Outer to Inner): Min Max Ave	Texture				
1 7,	nm Restrous			~	
1 10 22000	non Restinous				THE
3.					
4.			W		
5.		_		The state of the s	
6.		_	D5-5		
Comments and XRD Mineralogy: Fe-Haired layer between		ANALYSES			
sitting by the more and a	e chust d	Subsample & Type	Analysis	Weight	
Unione Tit together					***************************************
one cobble			_		
Substrate Description Rock Type:			-	-	JF)
Description:					
			Allegan of the collegens	***	
				-	
			1 S		
					- Administra
Described By: Su	ibsampled Bv:				

Cruise Id: <u>F7-87-SC</u>	Size: 8 7 9	Location:	can Mar	700 S
Sample Id: D5-6	Weight:	he. Depth:		
Mn Crust Description Surface Texture: 5mg 17				
Mn Crust Thickness: Min:	28 Ave: 13,			
Layers (Outer to Inner): Min Max 1	Ave Texture		75 80 90 100	110 120 150 142 100 ced 172 190 19
Comments and XRD Minera This phorphoto to baselt of Caust		Subsample & Type	Analysis CC XRD	Weight 15 mm
Substrate Description Rock Type:	Basalt			
Description:				
			a Planting Chairman	
		Y-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2		

Described By: D.J.

Subsampled By: 0.5

Cruise Id: F7-87-SC	_ Size:	Location:	San Marcu	S
Sample Id: 55-7	Weight:	Depth:	40 3275	
Mn Crust Description Surface Texture: SMooth to		-		
Mn Crust Thickness: Min: Max: 10 mm	Ave:_5.5			
Layers (Outer to Inner): Min Max Ave	Texture			
1	Marryl		-	
2. 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	massive	_		
4		- /	mm g 40 20 50 4	100 110 120 13
5.			www.co. ort out oft over	091 011 011 021 011 001 06 00 0
6				
Comments and XRD Mineralogy:	le	ANALYSES	05-7	
		Subsample & Type	Analysis	Weight
Substrate Description Rock Type: Basalt				
Description:				
Pigular Grey slightly	with some small		-	
J			SORTION FOR THE LABORITATION OF	
	,			
				υ.
Described By: Subs	sampled Bv:			

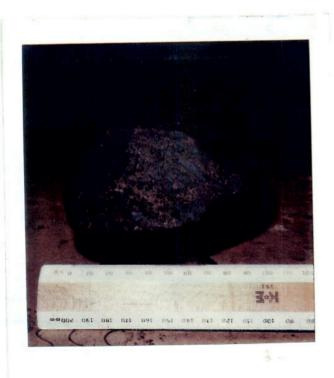
Cruise Id:_	F7-87-SC	Size: <u>15 X9 5 X</u>	9 cm Location:	Son Mars	
		Weight:			
Mn Crust Surface Tex	Description ture:	to Curried (1)			
Mn Crust T	11 . 1	oded (?) botryoidal Ave:		1	
Min		e Texture		an c a a s	
6	and XRD Mineralo	gy:	ANALYSES Subsample & Typ	oe Analysis	Weight
Substrate Rock Type:	Description				7
Description	rtirey ionly	yesi esev Olumbunsi			
Green Grey	fairly fresh looking w	lots of small phenocryst			
Docaribad					
Described B	A. S 210	Subsampled By:			

Cruise Id:_	F7-87-S	С	Size: 7.5 v 6 x	6000	_ Location:	YOM INDI		
			Weight: 0.3 Ra					
Mn Crust	Description		se gorda .					
Mn Crust T		1	Ave:	<u>,</u>				
Min	ter to Inner):	Ave	Texture					
2								
4							Mar age 196 1971	HAT HAT DAT GET GET GET GET GET GET GET GET GET GE
5 6								
Comments	and XRD Min	eralogy:		ANA	LYSES	05-10	A.	
				Subsa DS-9	mple & Type	Analysis	Weight	1.0
Substrate Rock Type:	Description	die P	Procia					
Masks	manday.	(6) e. /	aroscule ta			-		
2 3017 6	easaltic glass	V/00%-		-		and the second of the second o		
San	epk ad fo	4 g/						
							-	
Described B	y: ^ _ ``	Su	bsampled By:					

ompie id	05 - 10		Weight:	Depth: _	M060 - 207	
Mn Crust]	Description					
Surface Text	ture:	2.0				
				_	7 国	
In Crust Tl	nickness:					
		5 mm	Ave: 3 w			
avers (Oute	er to Inner):					
Min	Max	Ave	Texture			
					44 5 th 70 so	40 TO 00 10 40 20 100 10 W
						K-Z
		+	 		101 Miles 021	091 081 091 081 081 011 001 06 0
					- Mario Correla	
						10 mg 100 mg
		1				
Comments a	nd XRD Min	eralogy:			D5-10	
OFFICE A	inloked on		seen lyres a	ANALYSES	05-10	
Opinge of	inloved con	Polis		ANALYSES Subsample & Typ		Weight
Opinge of	inloved on a	Polis	asalt + substrate			Weight
Opinge of	inloved on a	Polis				Weight
Opinge of	inloved on a	Polis				Weight
Opinge of	inloved on a	Polis				Weight
Orange co	lored material	Polis				Weight
Orange col	lored material Description	Polis				Weight
Orange co	lored material Description	Polis				Weight
Orange co	lored material Description	Polis				Weight
Orange col	lored material	Polis				Weight
Orange college of the	ored material Description	between b				Weight
Orange col	lored material	between b	asalt + substrate			Weight
Orange col	lored material	between b	asalt + substrate			Weight
Orange col	lored material	between b	asalt + substrate			Weight
Orange col	lored material	between b	asalt + substrate			Weight
Orange col	lored material	between b	asalt + substrate			Weight
Orange col	lored material	between b	asalt + substrate			Weight

			Size: 10×7.5×					
Sample Id:	D5-11		Weight:	Depth:	4080	- 304:	,	
Mn Crust Surface Tex	Description ture: Smooth	4 90	war, Slightle	_				
Mn Crust T	hickness: Max:_	17 mm	Ave: 10 mn					(2)
Layers (Our Min		Ave	Texture					
2					92.5	10 20 FO	-c0 60 60 70 44 2 9 0	100 100 100 15
3					or we special	114 119 sts	1995 Rys Gys G41 G83 G11	K
4				_				*
5						The same of	Mary Arthurst	
6		<u> </u>						
	and XRD Mine		<i>Q</i>	ANALYSES	D5-	17		
				Subsample & Ty	rpe A	nalysis	Weight	
							-	
Substrate Rock Type	Description							
Description								
Description	:						-	
						-		
								The second secon
				-				
								The state of the s
			***	,				
Described I	By: 15M	Sub	sampled By					

Cruise Id: F7-87-SC	_Size: 12.5x 8.5	< 5.50m Location: 5	on Maxcos	
Sample Id: D5-12				
Mn Crust Description Surface Texture: Small				
Mn Crust Thickness: Min: 20m Max: 20m	Ave: 11mm			
Layers (Outer to Inner): Min Max Ave 1.	Texture			MAN
3				
4				No.
56				
Comments and XRD Mineralogy:	20.0	ANALYSES	75-12	2
Countepartitio 17 1211		Subsample & Type	Analysis	Weight
			-100 0000000000000000000000000000000000	
Substrate Description Rock Type: <u>Paralle Cooke to</u>	de Volaguelasis			
Description:				
Described By: Su	bsampled Bv:			*



D5-12

Cruise Id:_	F7-87-SC	Size:Size:	X Ocm Location: Car None
			Depth: 1/2 2 2 2 2
Mn Crust Surface Tex	Description	12 <u>2 a no ato</u>	8.38
1.1.	175		
Mn Crust T	hickness:	Ave:	
Layers (Ou Min	ter to Inner):	ve Texture	
2			
3			10.00 at the 200 th on 20 cm to see we also allo 1200
4			# 191 191 191 191 191 191 191 191 191 19
5			
6.			
Comments	and XRD Minera	logy:	ANALYSES D5-13
			Subsample & Type Analysis Weight
Substrate Rock Type	Description		
Description	: eed soefood a	arte e e e e	
	an (placement		
Fracture 6	d surface glassy alt	<mark>ering with tan (phosphorit</mark>	e) mud
	, * a.c		
Described I	By:	Subsampled Ru-	

SAMPLE DESCRIPTION 13 × 7 × 10 c-

Cruise Id:	F7-87-S	С	Size: <u>Various</u>	Location:	JAN Mores	-5	
				Depth:			
Mn Crust	Description		ese est chia				
			· Accessi				
	4		0 31 31 31 31		CASSIN I SURBINE.		Name of Street, or other Designation of the last of th
Mn Crust T		sot i	Ave:		45	200	15.
	er to Inner): Max	Ave	Texture				SO V
1						1	
2					30		The same
3						Age (1
4							
5					NAME OF TAXABLE PARTY.		
6					15		
Japan	and XRD Min	Key letter	- Inpusts	ANALYSES	5-14		
<u> 04</u>	2001 100	0-044	. Echie	Subsample & Type	Analysis	Weight	
13 0 AUG	ico (promo j	e *	9000				W-1405
	salt cobbles w/ohorite layers.		aried thickness.				
	(more pieces b		ey are all cut)		THE RESIDENCE OF THE PARTY OF T		
Substrate	Description						
Rock Type:	Basalt						
Description:							
	118 Tr. 85 2- W	1 1 2 25 p. 1.	(2				(4)
basalt	Songia no	122 17	or or use and				
	low colored ma	aterial (pho	osphorite?) on a			* * Table Committee of the Committee of	
_ <mark>few sample</mark>	es occurs betw	een crüst a	and basalt				
						OXIOCALIE ALVES	
					-		
Described B	y: 55M	Sul	bsampled Bv				

Cruise Id: F7-87-SC	_Size: 18-× '2.5	x 14cm Location: San	Marcos	
Sample Id: 05-15	Weight: 1K5	Depth: <u>식</u> 080	- 3045	1
Mn Crust Description Surface Texture: Smooth la				
		-		
Mn Crust Thickness: Min: 2 Max: /3mm	Ave: Q 10.16			
Layers (Outer to Inner): Min Max Ave	Texture			Y
1				
2				
3				
4.				KE
5.			11	AND DE NO DE DE DE LA CASE DE LA
6		D 4	5-15	
Comments and XRD Mineralogy: (20 x/3 ax) Clash	R. Datrice	ANALYS) -/:	,
Muno obs well in fresh	24 fin in	Subsample & Type A	Analysis	Weight
(20x13mm) Clast of dendritic yellow/white sediment is glues frag in area of thickest MnO2	MnO2 plus			
Substrate Description Rock Type:	1/2			
Description: Break Const. 3 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	= w/s			
	,	Basalt Cobble, angular w/ a very strange shape □		
Common Stille 4	mon acquis.	□ Vesicular basalt with		
Some While "sed P.	ly: M	common vesicles <1mm across. □ Some white sed PO4? in vesicles□	8	
Described By: Subs	sampled By:			

Cru	ise Id:	F7-87-9	SC	_ Size: 18 x 12 x	13cm Location:	Son Maeco	<u>_</u>	
San	nple Id:	D5-16	0	Weight: 2Kg	Depth:	169 - 304		
Mr	Crust 1	Description	1	triods (WL7 mm				
÷.	mmos.	across) on t	sop; thich	c encrustations L	(7mm)			
3.6	Florge	2000 (000	roles Mr	swel nicon		1.3		
Mn	Min:	nickness: Max	:19	Ave: 9 mm				
		er to Inner):					1.4	
	Min	Max	Ave	Texture				
ζ1. _	3	15	U	massive, black				
\begin{cases} 1 \\ 2 \end{cases}	3	н	3	poy with Era old crust brooks in it. ormy between pour	(floating)	* 0		
)a				Schwen Pour	14 basel P	7		
٠,٠	11							S. S. S. B. Balland
4 D	7	1-	1,	granular Mno	2 in -00	Del UNI DEL UNI DUI	nes has nes out nos	UK 08 06 0
∕s			4	lows.		Water to	1	
B					7	- 11		
Con	nments a	nd XRD Mir	neralogy:		$\boldsymbol{\nu}$	5-16	7	
_					ANALY			
_					Subsample & Type	Analysis	Weight	
					D5-16A	Co	<u>arawlas</u>	Gample orea
							From Sides	This corte riv
-						-		howhick were
							Forming in a silv	1/1 1/2012 125.
		escription					Fa bleire w	rannous hed wo
	k Type	April 1 Carro					38000 0000	4, 14,
Desc	ription:						-	
_	(astino	ginnin e	1. 16 4				*	
<u> </u>	the galace	, , , , , , , , , , , , , , , , , , ,	jajo II goras					
1.	N 40	wd 51, *1	- AVE	10 100	-		•	
		* 100	.,,		Cooling fractures have	created elongate	d hollows those	
			united as		filled with dendritic *Mn □			
					*described as large gra	nular MnO2 abov	e	
-								
-				•		v	Q.	
Desc	ribed By		Sub	sampled D				

Cruise Id:_	F7-87-S0	D	Size: 16× 15×	Location:	~ //axc	A C
Sample Id:	D5-17		Weight: 2 kg	Depth: :/3	30 - 30C	
Mn Crust	Description					
				-		THE PARTY OF THE P
1.114	- 3x2000000		View in	-		
Mn Crust 7	Thickness:	20am	_Ave:			
Layers (Ou	ter to Inner):					
Min	Max	Ave	Texture			The second second
1		ļ			-	
2						
3						
				_		THUM
4						
5						100
6						
Comments	1 VDD 16	,		4	D5-1	7
	and XRD Mine			ANALYSES		(
Carios	1 AFCL I		10100	Subsemble & True	A 1:	317 . 1
Institution	1. 1. 1. d. 20 - 1.	43/1 1	E ter	Subsample & Type	Analysis	weight
				DE-173	ZRO	yellow layer -
				D5-17C	palec	glioss (1.D.)
	Description					
Rock Type	:Bas2/t	-				
Descripti				·	-	
Description G	INA Pin	1/1/1/	A VI. 14	-		
on the	Dasal Abor	1.1	is a other			
Clastic	you, soft my	vite a	Hered volcans			
CHAS STO						
				-		
San,	aled Low	Was	ST 4 1916CC			
Ly	bull the		(A.D.) 7			
						
Described E	By: 5501	Su	ibsampled By:			

CEMPT

CE

D5 - 17

ruise Id: <u>F7-87-SC</u>	_ Size: 11.5 × 8.5 × 8	(cm) Location:	Dan Marco	02
Sample Id: <u>D5-18</u>				
Mn Crust Description Surface Texture: Smooth to sorro	rs/w/Ec Slata			
Mn Crust Thickness: (in mm) Min: Max:	-			
Layers (Outer to Inner): Min (mm) Max (mm) Ave (mm)	A) Texture, Color			
1.		_		
2.		-		
4		-		
5		-		
•			>= 10	
Comments and XRD Mineralogy:		ANALVEE	15-18	
		ANALYSES Subsample & Type	Analysis	thickness of layers samp to and explanas - of subscripte location lif needed).
			. ———	
	,			
Substrate Description Rock Type: _/alaaacaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	nella.			
Description:				
Comerch of viril a prochable on	D. Marce		-	
Most alasta are aren paso	14.			
Described By: Subs	sampled Dr.			

SAMPLE DESCRIPTION

(6.5.46.43)

Size: 9 x 8 x 4.5 (cm) Location: Sam Marios

Sample Id: D5-19 Weight: 1 kg (kg) Depth: 1080 - 3045 (m)

Mn Crust Description

Surface Texture: Smooth on One spanning

Min: Dating Max: 2 mm Ave: 1 mm



Min (mm) | Max (mm) | Ave (mm) | Texture, Color

Layers (Outer to Inner):

Comments and XRD Mineralogy:

D5-19

0.		
openation of both country Fraction	1)Cen	ANALYS

LODENHAGE OF BOTOS AND FRACTURED NEED PURSUE RECEIVED MAN DE ATTHER MALERIA LIN FRACTURES. TUDEN SHOSPHORITED ROME RECOIVED PROSPHORITED ROME TEACHER ADMINISTRATION FRACTURED SUPPLY FRACTURED SUPPLY FRACTURED FRACTUR

Substrate Description
Rock Type: Resalt, green Slightly recicular

Description:

Described By:

Su	hsam	nlec	Rv.	

ANALYSES					
		thickness	40	layers way	. 3
Subsample & Type	Analysis	AND DESCRIPTIONS		- 1.0E 0X5	

 	subscripte location lif necessi.
 -	
-	
 - Million of the Sample Company of the Sampl	
-	

Cruise Id: F7-87-SC Size:	Location: San Marcos
Sample Id: <u>D5-20, 2/22</u> Weight:	Depth:
Min Crust Description	
Surface Texture:	- 4 basact collectes taken out of bay of base Without Mu Gusts
	- taken out of bay of was
Mn Crust Thickness: Min: Max: Ave:	Without Min Gusts
Layers (Outer to Inner):	-
Min Max Ave Texture	
2.	
comments and XRD Mineralogy.	
Comments and XRD Mineralogy:	ANALYSES
omments and XRD Mineralogy:	— Subsample & Type Analysis Weight
omments and XRD Mineralogy:	Subsample & Type Analysis Weight D5-20 probe Seas (A.D.) - 110 d.
omments and XRD Mineralogy:	Subsample & Type Analysis Weight D5-20 probe Susc A.D.) + WRd.
omments and XRD Mineralogy:	Subsample & Type Analysis Weight D5-20 probe Suss A.D.) + WRds
	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WRds D5 22 n
ubstrate Description	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WRds D5 22 n
abstrate Description	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WR da D5 22 n
abstrate Description	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WRds D5 22 n
ubstrate Description	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WR da D5 22 n
ubstrate Description	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WRds D5 22 n
abstrate Description	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WRds D5 22 n
ubstrate Description	Subsample & Type Analysis Weight D5-20 probe Stass A.D.) + WRds D5 22 n
comments and XRD Mineralogy: ubstrate Description ock Type: escription:	Subsample & Type Analysis Weight D5-20 probe Susc A.D.) + WRds D5 22 n
ubstrate Description	Subsample & Type Analysis Weight D5-20 probe Susc A.D.) + WRds DS 22 n